**Solids, Liquids, and Gas**

**5E Lesson Plan**

|  |
| --- |
| Teacher: Ivory Robinson  Date: 10-19-2015    Subject area/course/grade level: Science/2nd grade  Materials: Examples of solid materials- A rock, coin, and a piece of wood/Examples of liquid materials- a bottle of water, a cup of milk, and a bottle of honey/a handout listing different types of gases, a balloon, cutouts for a diagram and ice cubes. Also, plastic cups, root beer, and vanilla ice cream.  Standards: 1.) Identify states of matter as solids, liquids, and gases.  •  Describing objects according to physical properties, including hardness, color, and flexibility  •  Describing changes between states of matter  Examples:  - solid to liquid—melting,  - gas to liquid—condensing,  - liquid to gas—evaporating,  - liquid to solid—freezing  •  Measuring quantities of solids and liquids    Objectives: The objective of this lesson is to teach the students the difference between solids, liquids, and gases, and for them to understand that some forms of matter can change into different states.  Differentiation Strategies: Tier 1- Write a song about the components of solids, liquids, and gas. Tier 2- A foldable in which the students use glue and cheerios to display the particles of each state of matter. Tier 3- A cut and paste activity in which they match pictures of items to the words solid, liquid, and gas. |

|  |
| --- |
| **ENGAGEMENT:**  I will present a bag to my class with the following items; a bottle of water labeled liquid, a stone labeled solid, and a balloon labeled gas. First, I will ask my students, “What do you think is in this bag?” After a few guesses, I will pull each item out of the bag one at a time and ask them what the label says. From there, I will ask them why these items are considered either a solid, liquid, or a gas. I will then define what liquids, solids, and gases are. Finally, I will ask the class to give me other examples of each state of matter, then show a short video about the stages of matter.  Assessment: I will determine the comprehension of my students on this matter based on the examples they give me of each state of matter. |
| **EXPLORATION:**  The students will be given a worksheet of cutout labels and pictures representing different types of each matter; solid, liquid and gas. They will be creating their own diagram in which they place the labels in the correct category of solid liquid or gas. The 23 students will be divided into 5 groups of 4 and 1 group of 3. After each group finishes their diagram, as a group, they will tell me why they placed the items into the categories they did  Assessment  I will determine the students’ knowledge of the subject thus far by how many correct matches they have for the group diagram and to their bubblus diagram. |
| **EXPLANATION:**  Again, I will give the definition of a solid, liquid, and a gas. I will explain why objects are considered one of the three. I’ll then ask my students, “Why is water a liquid and not a solid?” I will blow up the balloon and ask my class, “Why is the air in the balloon considered a gas and not a liquid?” To get my children to think deeper, I will ask them, “Is there anything that can be more than one type of matter?” From there, I can pull out the ice cubes and ask my students, “How is ice made? What happens when it melts?” I will then explain how water is a matter that can become different forms of matter.  Assessment: The students will be quizzed on the different types of matter and must match certain components of matter to the correct category. |
| **ELABORATION:**   1. I will introduce the bubblus format with thorough examples dealing with other subjects. From there, everyone will create a bubblus diagram of their own connecting the given items to the proper category of solid, liquid, and gas. 2. I want to do an activity that the students will enjoy, but also make this lesson a memorable one! The students will be creating root beer floats. Each part of the float represents a form of matter and the students must correctly identify which part is a liquid, solid, or gas and why. This will be labeled on a worksheet.   Root beer- Liquid  Scoop of ice cream- Solid  The fizzing bubbles that occur when the ice cream meets the root beer- Gas  Assessment: Do the students correctly identify and label each component of matter? I will look for this while investigating their finished bubblus products. |
| **EVALUATION:**  The students will be tested on the components of matter; solids, liquids, and gases. They must define each component and match a number of items to the correct category. |

References:

Bybee, R.W. et al. (1989). *Science and technology education for the elementary years: Frameworks for curriculum and instruction.* Washington, D.C.: The National Center for Improving Instruction.

Bybee, R. W. (1997). *Achieving Scientific Literacy: From Purposes to Practices.* Oxford: Heinemann.

National Research Council. (1999). *Inquiry and the national science education standards: A guide for teaching and learning.* Washington, D.C.: National Academy Press.

Polman, J.L. (2000). *Designing project-based silence: Connecting learners through guided inquiry.* New York: Teachers College Press.